

IN THE CLAIMS:

The following is a current listing of claims and will replace all prior versions and listings of claims in the application. Please amend the claims as follows:

1. (Currently Amended) An apparatus, comprising:

a switch having a plurality of ports, wherein the switch is configured to receive a packet on a first of the plurality of ports, the packet including header data including path routing information, wherein the path routing information is usable to route the packet from an origin node to an endpoint node within a network, and wherein the path routing information includes a first turn value and a bit count value;

wherein the switch is configured, based on an identifier for the first port, the first turn value, and the number of the plurality of ports, to transmit the packet on a second of the plurality of ports, wherein the switch is configured to select the first turn value using the bit count value[.];

wherein the path routing information is translatable by the endpoint node for the packet to determine reverse path routing information that is usable to route one or more packets back to the origin node from the endpoint node.

2. (Currently Amended) A system, comprising:

a switch having a plurality of ports including a first port and a second port, wherein the switch is configured to receive a packet on the first port, wherein the packet includes header data, ~~the header data~~ comprising path routing information that is usable to route the packet from an origin node to an endpoint node within a network, and wherein the path routing information includes a turn pool, wherein the turn pool comprising[es] a plurality of turn values;

wherein the switch is configured to select, using a received bit count value, one of the plurality of turn values, and wherein the switch is further configured, based on the selected turn value, an identifier for the first port, and the number of the plurality of ports, to select the second port on which to transmit the packet ~~on the second port[.];~~

wherein the path routing information is translatable by the endpoint node for the packet to calculate reverse path routing information that is usable to route one or more packets back to the origin node from the endpoint node.

3. (Canceled)

4. (Currently Amended) The system of claim 2, wherein the header data is comprised of a credit length, ~~[[a]]~~ the bit count value, an operation, a Path Identifier (PID) index, a Maximum Transmission Unit (MTU) and an Extended Unique Identifier (EUI).

5-12. (Canceled)

13. (Currently Amended) The system of claim 2, wherein the header data further comprises ~~[[a]]~~ the received bit count value, ~~wherein the switch is configured to use the bit count value to select a turn value from the plurality of turn values.~~

14. (Canceled)

15. (Currently Amended) A switch, comprising:

first means for receiving a packet on a first port of a plurality of ports of the switch, the packet comprising path routing information, ~~wherein the path routing information~~ usable to route the packet from an origin node to an endpoint node, and wherein the path routing information comprises a turn pool, wherein the turn pool comprising~~ing~~[[es]] a plurality of turn values;

second means for selecting one of the plurality of turn values in the turn pool, wherein said selecting uses a received bit count value;

third means for using the selected turn value, an identifier of the first port, and the number of the plurality of ports to select a second port of the plurality of ports on which to transmit the packet; and

fourth means for transmitting the packet on the second port~~[[.]]~~;

wherein the path routing information is translatable by the endpoint node for the packet to determine reverse path routing information that is usable to route one or more packets back to the origin node from the endpoint node.

16. (Canceled)

17. (Currently Amended) The switch of claim 15, further comprising:
fifth means for modifying the path routing information prior to transmitting the packet,
wherein the path routing information comprises the bit count value.
18. (Currently Amended) A method, comprising:
receiving, at a switch within a network, an encapsulated packet, wherein the encapsulated packet includes path routing information that includes a plurality of turn values, and wherein the encapsulated packet is received at first of a plurality of ports of the switch;
the switch selecting one of the plurality of turn values using a bit count value included in the path routing information;
the switch determining a second port of the plurality of ports using the selected turn value, an identifier for the first port, and the number of the plurality of ports; and
the switch transmitting the encapsulated packet via the second port[.];
wherein the path routing information is usable by a destination node for the packet to determine a backward path along which one or more packets may be transmitted back to an origin node for the encapsulated packet.
19. (Previously Presented) The method of claim 18, further comprising modifying the bit count value prior to transmitting the encapsulated packet via the second port.

20. (Currently Amended) A method of path routing a packet from a source to a destination within a fabric having at least one switch, the method comprising:

receiving an encapsulated packet at a first of a plurality of ports of the at least one switch, wherein the encapsulated packet includes a header including a first turn value;

selecting the first turn value using a received bit count value;

determining a second of the plurality of ports using the first turn value, an identifier for the first port, and the number of the plurality of ports; and

transmitting the encapsulated packet from the at least one switch via the second port[.];

wherein routing information within the transmitted encapsulated packet is translatable by the destination to determine reverse path routing information that is usable to route one or more packets back to the source from the destination.

21. (Currently Amended) The method of claim 20, wherein the header further comprises ~~[[a]] the bit count value, the method further comprising using the bit count value to select the first turn value from among a plurality of turn values in the header.~~

22. (Previously Presented) The method of claim 20, further comprising modifying the header prior to transmitting the packet via the second port.

23. (Canceled)

24. (Previously Presented) The method of claim 20, wherein the fabric comprises a plurality of switches, and the method further comprises repeating the receiving, the determining, and the transmitting at various ones of the plurality of switches with corresponding ones of a plurality of turn values until the packet reaches the destination, wherein the plurality of turn values includes the first turn value, and wherein the plurality of turn values are located in the header.

25. (Currently Amended) The method of claim 21, wherein the routing information in the transmitted encapsulated packet header further comprises~~[[ing]]~~ a turn pool including the plurality of turn values, and wherein the destination is configured to use the turn pool

and the bit count value of the packet to create a second header and encapsulate the second header within a second packet to be routed from the destination to the source.

26. (Canceled)

27. (Previously Presented) The apparatus of claim 1, the path routing information including a plurality of turn values that includes the first turn value, wherein each of the plurality of turn values corresponds to a respective network device within a path for the packet, and wherein a given one of the respective network devices in the path that receives the packet on a corresponding input port is configured to use the bit count value to select one of the plurality of turn values as a current turn value, and wherein the given network device is further configured to transmit the packet on an output port of the given network device, wherein the output port is specified by the current turn value, the corresponding input port of the given network device, and the number of ports of the given network device.

28. (Previously Presented) The method of claim 20, wherein the header includes a turn pool including a plurality of turn values that includes the first turn value.

29. (New) The apparatus of claim 1, wherein the path routing information is translatable by:
setting the bit count value to zero; and
inverting and bit reversing a turn pool including the first turn value.

30. (New) The method of claim 18, wherein the switch is coupled to the origin node.

31. (New) The method of claim 18, wherein the switch is coupled to the destination node.